

AMENDMENTS TO THE CLAIMS:

Please amend Claim 72 as follows:

1-68. (Cancelled)

69. (Previously Presented) An optical system comprising:

an optical element including (a) a first optical component for forming an intermediate image of an object and having a refractive surface of rotationally asymmetric shape and at least one reflective surface, and (b) a second optical component for forming a final image with light from the intermediate image and having a refractive surface of rotationally asymmetric shape and at least one reflective surface; and

an aperture stop,

wherein the following relation is satisfied:

$$\left| \frac{D \cdot f1}{S \cdot AR1} \right| < 0.1$$

where D is a size of a noise source near the intermediate image, f1 is a maximum focal length of said first optical component out of those dependent upon azimuths, an azimuth at the maximum focal length of said first optical component being defined as  $\xi$ , S is an on-axis astigmatic difference at the intermediate image position, and AR1 is a diameter of an exit

pupil by said first optical component in correspondence to the azimuth  $\xi$ , at the time an aperture of said aperture stop is maximized.

70. (Previously Presented) An optical apparatus according to Claim 69, wherein the following relation is satisfied:

$$D = 35 \mu\text{m}.$$

71. (Previously Presented) An optical system comprising:  
an optical system according to Claim 69; and  
an image pickup device,  
wherein the final image is formed on a light receiving surface of said image pickup device by said optical system.

72. (Currently Amended) An optical system comprising:  
an optical element including (a) a first optical component for forming an intermediate ~~range~~ image of an object and having a refractive surface of rotationally asymmetric shape and at least one reflective surface, and (b) a second optical component for forming a final image with light from the intermediate image and having a refractive surface of rotationally asymmetric shape and at least one reflective surface; and  
an aperture stop,  
wherein the following relation is satisfied:

$$\left| \frac{D \cdot f1}{S \cdot AR2} \right| < 0.3$$

where D is a size of a noise source near the intermediate image, f1 is a maximum focal length of said first optical component out of those dependent upon azimuths, an azimuth at the maximum focal length of said first optical component being defined as  $\xi$ , S is an on-axis astigmatic difference at the intermediate image position, and AR2 is a diameter of an exit pupil by said first optical component in correspondence to the azimuth  $\xi$ , at the time an aperture of said aperture stop is minimized.

73. (Previously Presented) An optical apparatus according to Claim 72, wherein the following relation is satisfied:

$$D = 35 \mu\text{m}.$$

74. (Previously Presented) An image pickup apparatus comprising:  
an optical system according to Claim 72; and  
an image pickup device,  
wherein the final image is formed on a light receiving surface of said image pickup device by said optical system.

75. (Previously Presented) An image pickup apparatus comprising:  
an optical system including (a) a first optical component for forming an intermediate image of an object, (b) a second optical component for forming a final image with light from the intermediate image, and (c) an aperture stop,

wherein at least one of said first optical component and said second optical component comprises an off-axial curved surface, and wherein the final image is formed on a light receiving surface of an image pickup device by said optical system, and wherein the following relation is satisfied:

$$\left| \frac{5b \cdot f1}{|\beta| \cdot S \cdot AR1} \right| < 0.1$$

where b is a minimum resolution settled by the image pickup device, f1 is a maximum focal length of said first optical component out of those dependent upon azimuths, an azimuth at the maximum focal length of said first optical component being defined as  $\xi$ , S is an on-axis astigmatic difference at the intermediate image position,  $\beta$  is an image magnification of said second optical component to the azimuth  $\xi$  in the vertical direction, and AR1 is a diameter of an exit pupil by said first optical component in correspondence to the azimuth  $\xi$  at the time an aperture of said aperture stop is maximized.

76. (Previously Presented) An image pickup apparatus comprising:  
an optical system including (a) a first optical component for forming an intermediate image of an object, (b) a second optical component for forming a final image with light from the intermediate image, and (c) an aperture stop,

wherein at least one of said first optical component and said second optical component comprises an off-axial curved surface, wherein the final image is formed on a light receiving surface of an image pickup device by said optical system, and wherein the following relation is satisfied:

$$\left| \frac{5b \cdot f1}{|\beta| \cdot S \cdot AR2} \right| < 0.3$$

where b is a minimum resolution settled by the image pickup device, f1 is a maximum focal length of said first optical component out of those dependent upon azimuths, an azimuth at the maximum focal length of said first optical component being defined as  $\xi$ , S is an on-axis astigmatic difference at the intermediate image position,  $\beta$  is an image magnification of said second optical component to the azimuth  $\xi$  in the vertical direction, and AR2 is a diameter of an exit pupil by said first optical component in correspondence to the azimuth  $\xi$  at the time an aperture of said aperture stop is minimized.